Sheet 1 of 1	of 1	Sheet
--------------	------	-------

Substitute Form PTO-1449	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 13681-012001	Application No. 10/600,182	
information Dis	closure Statement	Applicant Otterbein et al.		
(Use several si	neets if necessary)	Filing Date June 20, 2003	Group Art Unit 1618	

U.S. Patent Documents							
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	A1	· · · · · · · · · · · · · · · · · · ·					
	A2						
	A3		·				

	Foreign Patent Documents or Published Foreign Patent Applications									
Examiner	Desig.	Document	Publication	Country or			Trans	slation		
Initial	ID	Number	Date	Patent Office	Class	Subclass	Yes	No		
	Bi									
	B2									
	Bl									
	B2									
	В3	٠.								

	Other D	ocuments (include Author, Title, Date, and Place of Publication)
Examiner	Desig.	
Initial	١Ď	Document .
	C1	Choi et al., "Therapeutic' carbon monoxide may be a reality soon," Am. J. Respir. Crit. Care Med., 171(11):1318-1319 (2005)
	C2	Dolinay et al., "Can Inhalation Carbon Monoxide be utilized as a therapeutic modality in human diseases?", pp. 203-236 in <i>Breath Analysis for Clinical Diagnosis and Therapeutic Monitoring</i> , Amann and Smith, eds., World Scientific Publishing Company (2004)
	C3	Dolinay et al., "Inhaled carbon monoxide confers antiinflammatory effects against ventilator- induced lung injury," Am. J. Respir. Crit. Care Med. 170:613-20 (2004)
	C4	Mayr et al., "Effects of carbon monoxide inhalation during experimental endotoxemia in humans," Am. J. Respir. Crit. Care Med., 171:354-360 (2005)
	C5	Ryter et al., "Therapeutic applications of carbon monoxide in lung disease," Curr. Opin. Pharmacol., 6:257-262 (2006)
	C6	Ryter et al., "Heme oxygenase-1/carbon monoxide: from basic science to therapeutic applications," Physiol. Rev. 86(2):583-650 (2006)
3	C7	Thom et al, "Therapeutic' Carbon Monoxide May Be Toxic," Am. J. Respir. Crit. Care Med., 171(11):1318 (2005)
	C8	

Examiner Signature	Date Considered
Dones	12/39/070
EXAMINER: Initials citation considered. Draw line through citation if n	ot in conformance and not considered. Include copy of this form with
next communication to applicant.	

Substitute Form PTO-1449	U.S. Department of Commerce Patent and Trademark Office		Application No. 10/600,182	
enformation Disc	closure Statement	Applicant Otterbein et al.		
(Use several sh	eets if necessary)	Filing Date	Group Art Unit	-

TATRUM			U.S. Patent I	ocuments			
Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
MA	A1	4,979,939	12/25/90	Shiber			
7	A2	5,084,380	01/28/92	Carney			
	A3	5,293,875	03/15/94	Stone			
	A4	5,588,962	12/31/96	Nicholas et al.			
	A5	5,709,874	01/20/98	Hanson et al.			
	A6	5,985,307	11/16/99	Hanson et al.			
	A7 .	6,069,132	05/30/00	Revanker et al.			
	A8	6,203,991	03/20/01	Nabel et al.			
	A9	6,251,418	06/26/01	Ahern et al.	17		
	A10	6,406,716	06/25/02	Sahatjian et al.			
	All	6,436,365	08/20/02	Dinkelborg et al.			
	A12	6,450,989	09/17/02	Dubrul et al.			
	A13	6,508,784	01/21/03	Shu			
	A14	6,508,787	01/21/03	Erbel et al.			
	A15	2003/0009127	01/09/03	Trescony et al.	11.	, 1	
	A16	2005/0250688	11/10/05	Pinsky et al.	T		1

	Foreign Patent Documents or Published Foreign Patent Applications									
Examiner	Desig.	Document	Publication	Country or			Trans	slation		
Initial	ID di	Number	Date	Patent Office	Class	Subclass	Yes	No		
M	Bi	WO 94/22482	10/13/94	WIPO						
,	. B2	WO 99/47512	09/23/99	WIPO		_				
	В3	WO 99/49880	10/07/99	WIPO						
PA	B4	WO 02/092075	11/21/02	WIPO						

	Other Documents (include Author, Title, Date, and Place of Publication)						
Examiner	Desig.						
Initial	ID	Document					
(NO)	Cl	Appel et al., "The pig as a source of Cardiac xenografts," J. Card. Surg. 16:345-56 (2001)					
2	C2	Bach, "Heme oxygenase-1 as a protective gene," Wien. Klin. Wochenschr. 114(Suppl):4:1-3 (2002).					

Examiner Signature	Date Considered
Mones	12/29/070
EXAMINER: Initials citation considered. Draw-line through citation if no	ot in conformance and not considered. Include copy of this form with
next communication to applicant.	

Substitute Form PTO-1449 - (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attomey's Docket No. 13681-012001	Application No. 10/600,182	
I .	closure Statement	Applicant Otterbein et al.		
	eets if necessary)	Filing Date June 20, 2003	Group Art Unit 1618	

Other Documents (include Author, Title, Date, and Place of Publication)			
Examiner	Desig.		
Initial	ID	Document	
1	C3	Baim and Grossman, "Treatment of Coronary Stenoses and Occlusions with Coronary Angioplasty,"	
12	Harrison's Principles of Internal Medicine, 13th Ed., Vol.1, 193:980-87 (1994)		
	C4	Billiar, "The diverging roles of carbon monoxide and nitric oxide in resuscitated hemorrhagic	
		shock," Crit. Care Med. 27:2842-3 (1999).	
	C5	Bracho et al., "Carbon Monoxide Protects against Organ Injury in Hemorrhagic	
	- 65	Shock/Resuscitation," Journal of Surgical Research, 107:270, (2002), Abstract.	
1 1		Brouard et al., "Carbon monoxide generated by Heme Oxygenase-1 (HO-1) suppresses endothelial	
	C6	cell apoptosis via activation of the p38 mitogen activated protein kinase (MAPK) pathway," Acta	
		Haematologica 103(Suppl 1):64, (2000), Abstract.	
•		Brouard et al., "Heme oxygenase-1-derived carbon monoxide requires the activation of transcription	
]	C7	factor NF-kappa B to protect endothelial cells from tumor necrosis factor-alpha-mediated	
<u> </u>		apoptosis," J. Biol. Chem., 277(20):17950-17961, (2002).	
	C8	Brouard et al., "Molecular mechanism underlying the anti-apoptotic effect of Heme oxygenase-1	
	Co	derived carbon monoxide," Xenotransplantation, 8(Suppl 1): p22 (2001).	
		Calabrese et al., "Carbon Monoxide (CO) Prevents Apoptotic Events Related to	
1	C9	Ischemia/Reperfusion (IR) Injury in an hDAF Pig-to-Primate Xenotransplantation Model,"	
	ļ	Xenotransplantation 10:488, (2003), Abstract.	
1	C10	Carbon Monoxide Poisoning - Symptoms;	
		http://my.webmd.com/hw/home_health/aa7304.asp;retrieved July 11, 2005	
	CII	Carbon Monoxide Poisoning - What Happens;	
		nttp://my.webmd.com/nw/nome_nealth/aa/320.asp;retrieved July 11, 2003	
1 1	C12 Chapman and Choi, "Exhaled monoxides as a pulmonary function test: use of exhaled nitric oxide		
		and carbon monoxide, Clin. Chest Med. 22:817-836 (2001).	
	C13 Chin et al., "Transcriptional regulation of the HO-1 gene in cultured macrophages exposed to mod		
airborne particulate matter," Am. J. Physiol. Lung Cell. Mol. Physiol., 284(3):L473-L480, (2003)			
C14 Choi and Otterbein, "Emerging role of carbon monoxide in physiologic and pathophysiologic			
—		states," Antioxid. Redox Signal. 4:227-228 (2002).	
i i	C15	Cozzi et al., "Donor Preconditioning with Carbon Monoxide (CO) in Pig-to-Primate	
	ļ. ———	Xenotransplantation," Xenotransplantation 10:528, (2003), Abstract.	
]	C16	Crapo et al., "Single-breath carbon monoxide diffusing capacity," Clin. Chest Med., 22:637-649,	
	<u> </u>	(2001). Deng et al., "Carbon Monoxide Potentiates Cerulein-Induced Pancreatitis in Chronic Alcohol-Fed	
	C17	Rats," Gastroenterology, 124(4):A618-19, (2003), Abstract.	
	 	Dyck et al., "Carbon Monoxide (CO) Attenuates Lipopolysaccharide (LPS)-Induced Cytokine	
	C18	Expression of IL-6," Acta Haematologica 103(Suppl 1):64, (2000), Abstract.	
 	 	Farrugia and Szurszewski, "Heme oxygenase, carbon monoxide, and interstitial cells of Cajal,"	
	C19	Microsc. Res. Tech. 47:321-4, (1999).	
 		Günther et al., "Carbon monoxide protects pancreatic beta-cells from apoptosis and improves islet	
1 1 .	C20	function/survival after transplantation," Diabetes, 51(4):994-999, (2002).	
 	 	Hartsfield and Choi, "Mitogen activated protein kinase (MAPK) is modulated by both endogenous	
	C21	and exogenous carbon monoxide," FASEB Journal 12:A187, 1088, (1998), Abstract.	
	 	Hartsfield et al., "Differential signaling pathways of HO-1 gene expression in pulmonary and	
	C22	systemic vascular cells," Am. J. Physiol., 277(6 Pt 1):L1133-L1141, (1999).	
	<u> </u>	1 0/0100000 1000000 100000 100000000000	

Examiner Signature	Date Considered . i		
\	1		
1	12129170		
$1 \vee V \cap V$	1 10 00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
EXAMINER: Initials citation considered. Draw fine through citation if not in conformance and not considered. Include copy of this form with			
payt communication to applicant			

Substitute Disclosure Form (PTO-1449)

Substitute Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attomey's Docket No. 13681-012001	Application No. 10/600,182
	closure Statement	Applicant Otterbein et al.	
(Use several sheets if necessary) (37 CFR §1.98(b))		Filing Date June 20, 2003	Group Art Unit 1618

Other Documents (include Author, Title, Date, and Place of Publication)			
Examiner Initial	Desig. ID	Document	
70	C23	Hartsfield et al., "Regulation of heme oxygenase-1 gene expression in vascular smooth muscle cells by nitric oxide," Am. J. Physiol., 273(5 Pt 1):L980-988, (1997).	
	C24	Hartsfield, "Targeted Overexpression of Heme Oxygenase-1 (HO-1) Attenuates Hypoxia-Induced Right Ventricular Hypertrophy," FASEB Journal 13:A827, (1999), Abstract.	
	C25	Horvath et al., "'Haemoxygenase-1 induction and exhaled markers of oxidative stress in lung diseases', summary of the ERS Research Seminar in Budapest, Hungary, September, 1999," Eur. Respir. J., 18(2):420-430, (2001).	
	C26	Huizinga, Jan D., "Physiology and Pathophysiology of the Interstitial Cell of Cajal: From Bench to Bedside: II. Gastric motility: lessons from mutant mice on slow waves and innervation," Am. J. Physiol. 281:1129-1134, (2001).	
	C27	Kozma et al, "Role of carbon monoxide in heme-induced vasodilation," Eur. J. Pharmacol., 323:R1-2 (1997).	
	C28	Liu et al., "Carbon monoxide and nitric oxide suppress the hypoxic induction of vascular endothelial growth factor gene via the 5' enhancer," J. Biol. Chem. 273(24):15257-62 (1998)	
	C29	Miller et al., "Heme oxygenase 2 is present in interstitial cell networks of the mouse small intestine," Gastroenterology 114:239-244 (1998)	
	C30	Moore et al., "Carbon Monoxide Protects against Intestinal Dysmotility Associated with Small Bowel Transplantation," Gastroenterology 122:A38, (2002), Abstract.	
	C31	Moore et al., "Carbon Monoxide Suppresses the Development of Ileus Associated with Surgical Manipulation of the Small Intestine," Gastroenterology 122:A61-A62, (2002), Abstract.	
	C32	Mori et al., "Evaluation of hypothermic heart preservation with University of Wisconsin solution in heterotopically and orthotopically transplanted canine hearts," J. Heart Lung Transplant. 13:688-950 (1994)	
	C33	Morse et al., "Carbon monoxide-dependent signaling," Crit. Care Med., 30:S12-S17, (2001).	
	C34	Morse et al., "Suppression of inflammatory cytokine production by carbon monoxide involves the JNK pathway and AP-1," J. Biol. Chem., 278(39):36993-36998, (2003).	
	C35	Nakao et al., "Protective effect of carbon monoxide inhalation for cold-preserved small intestinal grafts," Surgery, 134:285-92, (2003).	
	C36	Ning et al., "TGF-beta1 stimulates HO-1 via the p38 mitogen-activated protein kinase in A549 pulmonary epithelial cells," Am. J. Physiol. Lung Cell. Mol. Physiol., 283(5):L1094-L1102, (2002).	
	C37	Otterbein et al., "Carbon monoxide at low concentrations induces growth arrest and modulates tumor growth in mice," Exp. Biol. Med., 228(5):633, (2003), Abstract.	
·	C38	Otterbein et al., "Carbon Monoxide Inhibits TNF&Induced Apoptosis and Cell Growth in Mouse Fibroblasts," American Journal of Respiratory and Critical Care Medicine 159(3 Suppl.):A285 (1999).	
	C39	Otterbein et al., "Carbon Monoxide Modulates Lipolysaccaride (LPS)-Induced Inflammatory Responses in vivo and in vitro," American Journal of Respiratory and Critical Care Medicine 159(3 Suppl.):A481 (1999).	
	C40	Otterbein et al., "Carbon Monoxide, A Gaseous Molecule with Anti-Inflammatory Properties," pp. 133-156 in <i>Disease Markers in Exhaled Breath</i> , Marczin et al., eds., Marcel Dekker, Inc., New York, (2003).	
	C41	Otterbein et al., "Carbon Monoxide Mediates Anti-Inflammatory Effects Via the P38 Mitogen Activated Protein Kinase Pathway," Acta Haematologica 103: 64, (2000), Abstract.	

, , , , , , , , , , , , , , , , , , , ,	. 1000 1.100111011011011011011011
Examiner Signature	Date Considered /
To dono	1 12/29/16
EXAMINER: Initials citation considered. D/aw line through citation if n	

Substitute Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 13681-012001	Application No. 10/600,182
	closure Statement	Applicant Otterbein et al.	
(Use several sheets if necessary)		Filing Date	Group Art Unit
(37 CFR §1.98(b))		June 20, 2003	1618

Other Documents (include Author, Title, Date, and Place of Publication)			
Examiner	Desig.	<u> </u>	
Initial	ID	Document	
200x	C42	Otterbein et al., "Carbon Monoxide Protects Against Oxidant-Induced Lung Injury in Mice Via the p38 Mitogen Activated Protein Kinase Pathway," Acta Haematologica 103:83, (2000), Abstract.	
	C43	Otterbein et al., "Exogenous administration of heme oxygenase-1 by gene transfer provides protection against hyperoxia-induced lung injury," J. Clin. Invest., 103(7):1047-1054, (1999).	
	C44	Otterbein et al., "Heme oxygenase: colors of defense against cellular stress," Am. J. Physiol. Lung Cell. Mol. Physiol., 279(6):L1029-L1037, (2000).	
	C45	Otterbein et al., "Protective effects of heme oxygenase-1 in acute lung injury," Chest. 116:61S-63S, (1999).	
	C46	Otterbein, "Anti-Inflammatory Effects of Carbon Monoxide in the Lung," CRISP Data Base National Institute of Health; Doc. No. CRISP/2003HL071797-01A1, (2003).	
	C47	Otterbein, "Carbon monoxide: innovative anti-inflammatory properties of an age-old gas molecule," Antioxid. Redox Signal., 4:309-319, (2002).	
	C48	Pileggi et al., "Heme oxygenase-1 induction in islet cells results in protection from apoptosis and improved in vivo function after transplantation," Diabetes, 50(9):1983-1991, (2001).	
	C49	Ryter and Choi, "Heme Oxygenase-1: Molecular Mechanisms of Gene Expression in Oxygen-Related Stress," Antioxid. Redox Signal. 4:625-632, (2002).	
	C50	Ryter et al., "Heme oxygenase/carbon monoxide signaling pathways: Regulation and functional significance," Mol. Cell. Biochem., 234-235(1-2):249-63, (2002).	
	C51	Ryter et al., "Mitogen Activated Protein Kinase (MAPK) Pathway Regulates Heme Oxygenase-1 Gene Expression by Hypoxia in Vascular Cells," Exp. Biol. Med., 228(5):607, (2003), Abstract	
	C52	Sarady et al., "Carbon monoxide modulates endotoxin-induced production of granulocyte macrophage colony-stimulating factor in macrophages," Am. J. Respir. Cell. Mol. Biol., 27(6):739-745, (2002).	
	C53	Sarady et al., "Cytoprotection by heme oxygenase/CO in the lung," in <i>Disease Markers in Exhaled Breath</i> , Marczin and Yacoub, eds., IOS Press, 346:73-78, (2002).	
	C54	Sasidhar et al., "Exogenous Carbon Monoxide Attenuates Mitogen Activated Protein Kinase (MAPK) Activation in Rat Pulmonary Artery Endothelial Cells Exposed to Hypoxia," American Journal of Respiratory and Critical Care Medicine. 1999;159(3 Suppl.):A352.	
	C55	Sass et al., "Heme Oxygenase-1 Induction Prevents Apoptotic Liver Damage in Mice," Naunyn-Schmiedeberg's Archives of Pharmacology 367:R78, (2003).	
	C56	Sato et al., "Carbon monoxide can fully substitute Heme Oxygenase-1 in suppressing the rejection of mouse to rat cardiac transplants," Acta Haematologica, 103(Suppl. 1):87, Abstract 348 (2000)	
	C57	Sato et al., "Heme oxygenase-1 or carbon monoxide prevents the inflammatory response associated with xenograft rejection," Acta Haematologica, 103(Suppl. 1):87, Abstract 345 (2000)	
	C58	Sethi et al, "Differential modulation by exogenous carbon monoxide of TNF-alpha stimulated mitogen-activated protein kinases in rat pulmonary artery endothelial cells," Antioxid. Redox Signal., 4:241-8, (2002).	
	C59	Sethi et al., "Differential Effects of Exogenous Carbon Monoxide on TNF-α-Induced Mitogen Activated Protein (MAP) Kinase Signaling Pathway in Rat Pulmonary Artery Endothelial Cells," American Journal of Respiratory and Critical Care Medicine 159(3 Suppl.):A350 (1999).	
	C60	Seyfried et al., "HO-1 induction protects mice from Immune-mediated liver injury," Naunyn-Schmiedeberg's Archives of Pharmacology 367:R80 (2003).	

	·
Examiner Signature	Date Considered /
	1-129/212
	12/29/06
EXAMINER: Initials citation considered. Draw line through citation if no	ot in conformance and not considered, Include copy of this form with
next communication to applicant.	•

Substitute Disclosure Form (PTO-1449)

Substitute Form PTO-1449 (Modified)			Application No. 10/600,182
1	losure Statement plicant	Applicant Otterbein et al.	
(Use several sheets if necessary) (37 CFR §1.98(b))		Filing Date June 20, 2003	Group Art Unit

Other Documents (include Author, Title, Date, and Place of Publication)				
Examiner	Desig.			
Initial	ID	Document .		
Ta	C61	Slebos et al., "Heme oxygenase-1 and carbon monoxide in pulmonary medicine," Respir Res. 4(7):1-13, (2003).		
	C62	Soares et al, "Heme oxygenase-1, a protective gene that prevents the rejection of transplanted organs," Immunol. Rev. 184:275-85, (2001).		
	C63	Soares et al, "Modulation of endothelial cell apoptosis by heme oxygenase-1-derived carbon monoxide," Antioxid. Redox Signal., 4:321-329, (2002).		
	C64	Soares et al., "Heme Oxygenase-1 and/or Carbon Monoxide can Promote Organ Graft Survival," in Disease Markers in Exhaled Breath, Marczin and Yacoub, eds., IOS Press, 346:267-273, (2002).		
	C65	Song et al., "Carbon monoxide induces cytoprotection in rat orthotopic lung transplantation via anti-inflammatory and anti-apoptotic effects," Am. J. Pathol., 163(1):231-242, (2003).		
	C66	Song et al., "Carbon monoxide inhibits human airway smooth muscle cell proliferation via mitogenactivated protein kinase pathway," Am. J. Respir. Cell. Mol. Biol. 27(5):603-610, (2002).		
	C67	Song et al., "Regulation of IL-1 beta-induced GM-CSF production in human airway smooth muscle cells by carbon monoxide," Am. J. Physiol. Lung Cell. Mol. Physiol., 284(1):L50-L56, (2003).		
	C68	Stupfel and Bouley, "Physiological and Biochemical Effects on Rats and Mice Exposed to Small Concentrations of Carbon Monoxide for Long Periods," Ann. N.Y. Acad. Sci. 174:343-368 (1970)		
	C69	Suganuma et al., "A new process of cancer prevention mediated through inhibition of tumor necrosis factor alpha expression," Cancer Res. 56(16):3711-5 (1996)		
	C70	Tobiasch et al, "Heme oxygenase-1 protects pancreatic β cells from apoptosis caused by various stimuli," J. Investig. Med., 49:566-71, (2001).		
	C71	Toda et al., "Exogenous carbon monoxide protects endothelial cells against oxidant stress and improves graft function after lung transplantation," Circulation, 98(17):1265 (1998)		
	C72	Yamashita et al., "Effects of HO-1 induction and carbon monoxide on cardiac transplantation in mice," Exp. Biol. Med., 228(5):616, (2003), Abstract.		
	C73	Zhang et al., "Carbon monoxide inhibition of apoptosis during ischemia-reperfusion lung injury is dependent on the p38 mitogen-activated protein kinase pathway and involves caspase 3," J. Biol. Chem., 278(2):1248-1258, (2003).		
	C74	Zhang et al., "Mitogen-activated protein kinases regulate HO-1 gene transcription after ischemia- reperfusion lung injury," Am. J. Physiol. Lung Cell. Mol. Physiol., 283(4):L815-L829, (2002).		
	C75	Zhou et al., "Endogenous carbon monoxide and acute lung injury," Section of Respiratory System Foreign Medical Sciences 19:185-187 (1999) (translation included)		
	C76	Zuckerbraun and Billiar, "Heme oxygenase-1: a cellular Hercules" Hepatology, 37(4):742-744, (2003).		
	C77	Zuckerbraun et al., "Carbon monoxide inhibits intestinal inducible nitric oxide synthase production and ameliorates intestinal inflammation in experimental NEC," J. Amer. College of Surgeons 197:S50 (2003)		
	C78	Zuckerbraun et al., "Carbon Monoxide Protects Hepatocytes from TNF-alpha/Actinomycin D Induced Cell Death," Critical Care Medicine 29:A59 (2001)		

Examiner Signature	Date Considered /
L lones	12/29/06
EXAMINER: Initials citation considered. Draw line through citation if no	ot in conformance and not considered. Include copy of this form with
next communication to applicant.	